

Grade 5

Unit 1

**Whole Number Computation
And
Application**

Student Workbook

Name:

A

Correct _____

Multiply.

1	$12 \times 10 =$		23	$34 \times 10 =$	
2	$14 \times 10 =$		24	$134 \times 10 =$	
3	$15 \times 10 =$		25	$234 \times 10 =$	
4	$17 \times 10 =$		26	$334 \times 10 =$	
5	$81 \times 10 =$		27	$834 \times 10 =$	
6	$10 \times 81 =$		28	$10 \times 834 =$	
7	$21 \times 10 =$		29	$45 \times 10 =$	
8	$22 \times 10 =$		30	$145 \times 10 =$	
9	$23 \times 10 =$		31	$245 \times 10 =$	
10	$29 \times 10 =$		32	$345 \times 10 =$	
11	$92 \times 10 =$		33	$945 \times 10 =$	
12	$10 \times 92 =$		34	$56 \times 10 =$	
13	$18 \times 10 =$		35	$456 \times 10 =$	
14	$19 \times 10 =$		36	$556 \times 10 =$	
15	$20 \times 10 =$		37	$950 \times 10 =$	
16	$30 \times 10 =$		38	$10 \times 950 =$	
17	$40 \times 10 =$		39	$16 \times 10 =$	
18	$80 \times 10 =$		40	$10 \times 60 =$	
19	$10 \times 80 =$		41	$493 \times 10 =$	
20	$10 \times 50 =$		42	$10 \times 84 =$	
21	$10 \times 90 =$		43	$96 \times 10 =$	
22	$10 \times 70 =$		44	$10 \times 580 =$	

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B

Improvement _____ # Correct _____

Multiply.

1	$13 \times 10 =$		23	$43 \times 10 =$	
2	$14 \times 10 =$		24	$143 \times 10 =$	
3	$15 \times 10 =$		25	$243 \times 10 =$	
4	$19 \times 10 =$		26	$343 \times 10 =$	
5	$91 \times 10 =$		27	$743 \times 10 =$	
6	$10 \times 91 =$		28	$10 \times 743 =$	
7	$31 \times 10 =$		29	$54 \times 10 =$	
8	$32 \times 10 =$		30	$154 \times 10 =$	
9	$33 \times 10 =$		31	$254 \times 10 =$	
10	$38 \times 10 =$		32	$354 \times 10 =$	
11	$83 \times 10 =$		33	$854 \times 10 =$	
12	$10 \times 83 =$		34	$65 \times 10 =$	
13	$28 \times 10 =$		35	$465 \times 10 =$	
14	$29 \times 10 =$		36	$565 \times 10 =$	
15	$30 \times 10 =$		37	$960 \times 10 =$	
16	$40 \times 10 =$		38	$10 \times 960 =$	
17	$50 \times 10 =$		39	$17 \times 10 =$	
18	$90 \times 10 =$		40	$10 \times 70 =$	
19	$10 \times 90 =$		41	$582 \times 10 =$	
20	$10 \times 20 =$		42	$10 \times 73 =$	
21	$10 \times 60 =$		43	$98 \times 10 =$	
22	$10 \times 80 =$		44	$10 \times 470 =$	

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Name _____

Date _____

- Record the digits of the first factor on the top row of the place value chart. Draw arrows to show how the value of each digit changes when you multiply. Record the product on the second row of the place value chart. The first one has been done for you.

a. $3.452 \times 10 = \underline{34.52}$

			3	4	5	2
			3	4	5	2

b. $3.452 \times 100 = \underline{\hspace{2cm}}$

			3			

c. $3.452 \times 1000 = \underline{\hspace{2cm}}$

- Explain how and why the value of the 5 changed in (a), (b), and (c).

2. Record the digits of the dividend on the top row of the place value chart. Draw arrows to show how the value of each digit changes when you divide. Record the quotient on the second row of the place value chart. The first one has been done for you.

a. $345 \div 10 = \underline{34.5}$

	3	4	5			

b. $345 \div 100 = \underline{\hspace{2cm}}$

c. $345 \div 1000 = \underline{\hspace{2cm}}$

- d. Explain how and why the value of the 4 changed in the quotients in (a), (b), and (c).

3. A manufacturer made 7,234 boxes of coffee stirrers. Each box contains 1000 stirrers. How many stirrers did they make? Explain your thinking and include a statement of the solution.

4. A student used his place value chart to show a number. After the teacher instructed him to multiply his number by 10, the chart showed 3200.4. Draw a picture of what the place value chart looked like at first.

- a. Explain how you decided what to draw on your place value chart. Be sure to include your reasoning about how the value of the digits was affected by the multiplication. Use words, pictures, or numbers.
5. A microscope has a setting that magnifies an object so that it appears 100 times as large when viewed through the eyepiece. If a tiny insect is 0.095 cm long, how long will the insect appear in centimeters through the microscope? Explain how you know.

Name _____

Date _____

- Record the digits of the first factor on the top row of the place value chart. Draw arrows to show how the value of each digit changes when you multiply. Record the product on the second row of the place value chart. The first one has been done for you.

a. $4.582 \times 10 = \underline{45.82}$

			4	5	8	2
			4	5	8	2

b. $7.281 \times 100 = \underline{\hspace{2cm}}$

c. $9.254 \times 1000 = \underline{\hspace{2cm}}$

- Explain how and why the value of the 2 changed in (a), (b), and (c).

2. Record the digits of the dividend on the top row of the place value chart. Draw arrows to show how the value of each digit changes when you divide. Record the quotient on the second row of the place value chart. The first one has been done for you.

a. $2.46 \div 10 =$ 0.246

				.			

Arrows showing value changes: 2 (top row, 4th column) → 2 (bottom row, 5th column); 4 (top row, 5th column) → 4 (bottom row, 6th column); 6 (top row, 6th column) → 6 (bottom row, 7th column).

b. $678 \div 100 =$ _____

				.			

c. $67 \div 1000 =$ _____

				.			

- d. Explain how and why the value of the 6 changed in the quotients in (a), (b), and (c).

3. Researchers counted 8,912 monarch butterflies on one branch of a tree at a site in Mexico. They estimated that the total number of butterflies at the site was 1000 times as large. About how many butterflies were at the site in all? Explain your thinking and include a statement of the solution.
4. A student used his place value chart to show a number. After the teacher instructed him to divide his number by 100, the chart showed 28.003. Draw a picture of what the place value chart looked like at first.

				●			

- a. Explain how you decided what to draw on your place value chart. Be sure to include your reasoning about how the value of the digits was affected by the division.
5. On a map, the perimeter of a park is 0.251 meters. The actual perimeter of the park is 1000 times as large. What is the actual perimeter of the park? Explain how you know using a place value chart.

Name _____

Date _____

1. Solve.

a. $54,000 \times 10 =$ _____

e. $0.13 \times 100 =$ _____

b. $54,000 \div 10 =$ _____

f. $13 \div 1000 =$ _____

c. $8.7 \times 10 =$ _____

g. $3.12 \times 1000 =$ _____

d. $8.7 \div 10 =$ _____

h. $4031.2 \div 100 =$ _____

2. Find the products.

a. $19,340 \times 10 =$ _____

b. $19,340 \times 100 =$ _____

c. $19,340 \times 1000 =$ _____

d. Explain how you decided on the number of zeros in the products for (a), (b), and (c).

3. Find the quotients.

a. $152 \div 10 =$ _____

b. $152 \div 100 =$ _____

c. $152 \div 1000 =$ _____

d. Explain how you decided where to place the decimal in the quotients in (a), (b), and (c).

4. Janice thinks that 20 hundredths is equivalent to 2 thousandths because 20 hundreds is equal to 2 thousands. Use words and a place value chart to correct Janice's error.
5. Canada has a population that is about $\frac{1}{10}$ as large as the United States. If Canada's population is about 32 million, about how many people live in the United States? Explain the number of zeros in your answer.

Name _____

Date _____

1. Solve.

a. $36,000 \times 10 =$ _____

e. $0.24 \times 100 =$ _____

b. $36,000 \div 10 =$ _____

f. $24 \div 1000 =$ _____

c. $4.3 \times 10 =$ _____

g. $4.54 \times 1000 =$ _____

d. $4.3 \div 10 =$ _____

h. $3045.4 \div 100 =$ _____

2. Find the products.

a. $14,560 \times 10 =$ _____

b. $14,560 \times 100 =$ _____

c. $14,560 \times 1000 =$ _____

d. Explain how you decided on the number of zeros in the products for (a), (b), and (c).

3. Find the quotients.

a. $1.65 \div 10 =$ _____

b. $1.65 \div 100 =$ _____

c. Explain how you decided where to place the decimal in the quotients in (a), (b), and (c).

4. Ted says that 3 tenths multiplied by 100 equal 300 thousandths. Is he correct? Use a place value chart to explain your answer.
5. Alaska has a land area of about 1,700,000 km². Florida has a land area $\frac{1}{10}$ the size of Alaska. What is the land area of Florida? Explain how you found your answer.

A

Correct _____

Multiply.

1	$1 \times 3 =$		23	$10 \times 3 =$	
2	$3 \times 1 =$		24	$9 \times 3 =$	
3	$2 \times 3 =$		25	$4 \times 3 =$	
4	$3 \times 2 =$		26	$8 \times 3 =$	
5	$3 \times 3 =$		27	$5 \times 3 =$	
6	$4 \times 3 =$		28	$7 \times 3 =$	
7	$3 \times 4 =$		29	$6 \times 3 =$	
8	$5 \times 3 =$		30	$3 \times 10 =$	
9	$3 \times 5 =$		31	$3 \times 5 =$	
10	$6 \times 3 =$		32	$3 \times 6 =$	
11	$3 \times 6 =$		33	$3 \times 1 =$	
12	$7 \times 3 =$		34	$3 \times 9 =$	
13	$3 \times 7 =$		35	$3 \times 4 =$	
14	$8 \times 3 =$		36	$3 \times 3 =$	
15	$3 \times 8 =$		37	$3 \times 2 =$	
16	$9 \times 3 =$		38	$3 \times 7 =$	
17	$3 \times 9 =$		39	$3 \times 8 =$	
18	$10 \times 3 =$		40	$11 \times 3 =$	
19	$3 \times 10 =$		41	$3 \times 11 =$	
20	$3 \times 3 =$		42	$12 \times 3 =$	
21	$1 \times 3 =$		43	$3 \times 13 =$	
22	$2 \times 3 =$		44	$13 \times 3 =$	

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B Improvement _____ # Correct _____

Multiply.

1	$3 \times 1 =$		23	$9 \times 3 =$	
2	$1 \times 3 =$		24	$3 \times 3 =$	
3	$3 \times 2 =$		25	$8 \times 3 =$	
4	$2 \times 3 =$		26	$4 \times 3 =$	
5	$3 \times 3 =$		27	$7 \times 3 =$	
6	$3 \times 4 =$		28	$5 \times 3 =$	
7	$4 \times 3 =$		29	$6 \times 3 =$	
8	$3 \times 5 =$		30	$3 \times 5 =$	
9	$5 \times 3 =$		31	$3 \times 10 =$	
10	$3 \times 6 =$		32	$3 \times 1 =$	
11	$6 \times 3 =$		33	$3 \times 6 =$	
12	$3 \times 7 =$		34	$3 \times 4 =$	
13	$7 \times 3 =$		35	$3 \times 9 =$	
14	$3 \times 8 =$		36	$3 \times 2 =$	
15	$8 \times 3 =$		37	$3 \times 7 =$	
16	$3 \times 9 =$		38	$3 \times 3 =$	
17	$9 \times 3 =$		39	$3 \times 8 =$	
18	$3 \times 10 =$		40	$11 \times 3 =$	
19	$10 \times 3 =$		41	$3 \times 11 =$	
20	$1 \times 3 =$		42	$13 \times 3 =$	
21	$10 \times 3 =$		43	$3 \times 13 =$	
22	$2 \times 3 =$		44	$12 \times 3 =$	

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Name _____

Date _____

1. Write the following in exponential form (e.g., $100 = 10^2$).

a. $10,000 =$ _____

d. $100 \times 100 =$ _____

b. $1000 =$ _____

e. $1,000,000 =$ _____

c. $10 \times 10 =$ _____

f. $1000 \times 1000 =$ _____

2. Write the following in standard form (e.g., $5 \times 10^2 = 500$).

a. $9 \times 10^3 =$ _____

e. $4.025 \times 10^3 =$ _____

b. $39 \times 10^4 =$ _____

f. $40.25 \times 10^4 =$ _____

c. $7200 \div 10^2 =$ _____

g. $725 \div 10^3 =$ _____

d. $7,200,000 \div 10^3 =$ _____

h. $7.2 \div 10^2 =$ _____

3. Think about the answers to Problem 2(a–d). Explain the pattern used to find an answer when you multiply or divide a whole number by a power of 10.
4. Think about the answers to Problem 2(e–h). Explain the pattern used to place the decimal in the answer when you multiply or divide a decimal by a power of 10.

5. Complete the patterns.

a. 0.03 0.3 _____ 30 _____ _____

b. 6,500,000 65,000 _____ 6.5 _____

c. _____ 9,430 _____ 94.3 9.43 _____

d. 999 9990 99,900 _____ _____ _____

e. _____ 7.5 750 75,000 _____ _____

f. Explain how you found the missing numbers in set (b). Be sure to include your reasoning about the number of zeros in your numbers and how you placed the decimal.

g. Explain how you found the missing numbers in set (d). Be sure to include your reasoning about the number of zeros in your numbers and how you placed the decimal.

6. Shaunnie and Marlon missed the lesson on exponents. Shaunnie incorrectly wrote $10^5 = 50$ on her paper, and Marlon incorrectly wrote $2.5 \times 10^2 = 2.500$ on his paper.

a. What mistake has Shaunnie made? Explain using words, numbers, and pictures why her thinking is incorrect and what she needs to do to correct her answer.

b. What mistake has Marlon made? Explain using words, numbers, and pictures why his thinking is incorrect and what he needs to do to correct his answer.

Name _____ Date _____

1. Write the following in exponential form (e.g., $100 = 10^2$).

a. $1000 =$ _____

d. $100 \times 10 =$ _____

b. $10 \times 10 =$ _____

e. $1,000,000 =$ _____

c. $100,000 =$ _____

f. $10,000 \times 10 =$ _____

2. Write the following in standard form (e.g., $4 \times 10^2 = 400$).

a. $4 \times 10^3 =$ _____

e. $6.072 \times 10^3 =$ _____

b. $64 \times 10^4 =$ _____

f. $60.72 \times 10^4 =$ _____

c. $5300 \div 10^2 =$ _____

g. $948 \div 10^3 =$ _____

d. $5,300,000 \div 10^3 =$ _____

h. $9.4 \div 10^2 =$ _____

3. Complete the patterns.

a. 0.02 0.2 _____ 20 _____ _____

b. 3,400,000 34,000 _____ 3.4 _____

c. _____ 8,570 _____ 85.7 8.57 _____

d. 444 4440 44,400 _____ _____ _____

e. _____ 9.5 950 95,000 _____ _____

4. After a lesson on exponents, Tia went home and said to her mom, “I learned that 10^4 is the same as 40,000.” She has made a mistake in her thinking. Use words, numbers or a place value chart to help Tia correct her mistake.
5. Solve $247 \div 10^2$ and 247×10^2 .
- a. What is different about the two answers? Use words, numbers or pictures to explain how the decimal point shifts.
- b. Based on the answers from the pair of expressions above, solve $247 \div 10^3$ and 247×10^3 .

Name _____

Date _____

1. Convert using an equation with an exponent.

a. 3 meters to centimeters _____ = _____ cm

b. 900 centimeters to meters _____ = _____ m

c. 8.1 liters to milliliters _____ = _____ ml

d. 537 milliliters to liters _____ = _____ l

e. 90.5 kilometers to meters _____ = _____ m

f. Convert 23 meters to kilometers. _____ = _____ km

g. 0.4 kilograms to grams _____ = _____ g

h. 80 grams to kilograms _____ = _____ kg

i. Circle the conversion factor in each equation above. Explain why converting from meters to centimeters uses a different conversion factor than converting from liters to milliliters, kilometers to meters, and kilograms to grams.

2. Read each aloud as you write the equivalent measures.

a. 3.5 km = _____ km _____ m

b. 1.23 l = _____ l _____ ml

c. 2.002 kg = _____ kg _____ g

d. 3 ml = _____ l

e. 3012 g = _____ kg

f. _____ m = 2.10 cm

3. The length of the bar for a high jump competition must always be 4.75 m. Express this measurement in millimeters. Explain your thinking using an equation that includes an exponent.
4. A honey bee's length measures 1 cm. Express this measurement in meters.
- a. Explain your thinking using a place value chart.
- b. Explain your thinking using an equation that includes an exponent.
5. James drinks 800 ml of water each day during his workout. Henry drinks 600 ml daily during his workout. If James works out 3 days each week, and Henry works out 5 days each week, how many liters do the boys drink in all each week while working out?

6. Katrina needs to tie ribbons around 10 flower arrangements for a party. Each arrangement requires 1.2 m of ribbon. She also needs 325 cm of ribbon to tie to the balloons for the party. If Katrina buys 15 m of ribbon, will she have enough? If so, how much ribbon (in meters) will she have left? If not, how many more meters of ribbon will she need to buy?

Name _____

Date _____

1. Convert:

a. 5 meters to centimeters $5 \text{ m} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ cm}$

b. 60 centimeters to meters $60 \text{ cm} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ m}$

c. 2300 milliliters to liters. $2.3 \text{ l} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ ml}$

d. 0.462 liters to milliliters $0.462 \text{ l} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ ml}$

e. 80.4 kilometers to meters $\underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ m}$

f. 0.725 kilometers to meters $\underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ m}$

g. 456 grams to kilograms $\underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ kg}$

h. 0.3 kilograms to grams $\underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ g}$

2. Read each aloud as you write the equivalent measures.

a. 2.7 km = $\underline{\hspace{2cm}} \text{ km} \underline{\hspace{2cm}} \text{ m}$

b. 3.46 l = $\underline{\hspace{2cm}} \text{ l} \underline{\hspace{2cm}} \text{ ml}$

c. 5.005 kg = $\underline{\hspace{2cm}} \text{ kg} \underline{\hspace{2cm}} \text{ g}$

d. 8 ml = $\underline{\hspace{2cm}} \text{ l}$

e. 4079 g = $\underline{\hspace{2cm}} \text{ kg}$

3. A dining room table measures 1.78 m long. Express this measurement in millimeters.
- a. Explain your thinking using a place value chart.
- b. Explain your thinking using an equation that includes an exponent.
4. Eric and YiTing commute to school every day. Eric walks 0.81 km and YiTing walks 0.65 km. How far did each of them walk in meters? Explain your answer using an equation that includes an exponent.
5. There were 9 children at a birthday party. Each child drank one 200 ml juice box. How many liters of juice did they drink altogether? Explain your answer using an equation that includes an exponent.

Name _____ Date _____

1. Fill in the blanks using your knowledge of place value units and basic facts.

a. 23×20

Think: 23 ones \times 2 tens = _____ tens

$23 \times 20 =$ _____

d. 410×400

41 tens \times 4 hundreds = 164 _____

$410 \times 400 =$ _____

b. 230×20

Think: 23 tens \times 2 tens = _____

$230 \times 20 =$ _____

e. $3,310 \times 300$

_____ tens \times _____ hundreds = 993 _____

$3,310 \times 300 =$ _____

c. 41×4

41 ones \times 4 ones = 164 _____

$41 \times 4 =$ _____

f. 500×600

_____ hundreds \times _____ hundreds = 30 _____

$500 \times 600 =$ _____

2. Determine if these equations are true or false. Defend your answer using your knowledge of place value and the commutative, associative, and/or distributive properties.

a. $6 \text{ tens} = 2 \text{ tens} \times 3 \text{ tens}$

b. $44 \times 20 \times 10 = 440 \times 2$

c. $86 \text{ ones} \times 90 \text{ hundreds} = 86 \text{ ones} \times 900 \text{ tens}$

d. $64 \times 8 \times 100 = 640 \times 8 \times 10$

e. $57 \times 2 \times 10 \times 10 \times 10 = 570 \times 2 \times 10$

3. Find the products. Show your thinking. The first row gives some ideas for showing your thinking.

a. 7×9
 $= 63$

$$\begin{aligned} 7 \times 90 \\ = 63 \times 10 \\ = 630 \end{aligned}$$

$$\begin{aligned} 70 \times 90 \\ = (7 \times 10) \times (9 \times 10) \\ = (7 \times 9) \times 100 \\ = 6,300 \end{aligned}$$

$$\begin{aligned} 70 \times 900 \\ = (7 \times 9) \times (10 \times 100) \\ = 63,000 \end{aligned}$$

b. 45×3

45×30

450×30

450×300

c. 40×5

40×50

40×500

$400 \times 5,000$

d. 718×2

$7,180 \times 20$

$7,180 \times 200$

$71,800 \times 2,000$

4. Ripley told his mom that multiplying whole numbers by multiples of 10 was easy because you just count zeros in the factors and put them in the product. He used these two examples to explain his strategy.

$$\begin{array}{rcl} 7,000 & \times & 600 & = & 4,200,000 \\ (3 \text{ zeros}) & (2 \text{ zeros}) & (5 \text{ zeros}) & & \end{array}$$

$$\begin{array}{rcl} 800 & \times & 700 & = & 560,000 \\ (2 \text{ zeros}) & (2 \text{ zeros}) & (4 \text{ zeros}) & & \end{array}$$

- a. Ripley's mom said his strategy won't always work. Why not? Give an example.
5. The Canadian side of Niagara Falls has a flow rate of 600,000 gallons per second. How many gallons of water flow over the falls in 1 minute?
6. Tickets to a baseball game are \$20 for an adult and \$15 for a student. A school buys tickets for 45 adults and 600 students. How much money will the school spend for the tickets?

Name _____

Date _____

1. Fill in the blanks using your knowledge of place value units and basic facts.

a. 43×30

Think: 43 ones \times 3 tens = _____ tens

$43 \times 30 =$ _____

b. 430×30

Think: 43 tens \times 3 tens = _____ hundreds

$430 \times 30 =$ _____

c. 830×20

Think: 83 tens \times 2 tens = 166 _____

$830 \times 20 =$ _____

d. $4,400 \times 400$

_____ hundreds \times _____ hundreds = 176 _____

$4,400 \times 400 =$ _____

e. $80 \times 5,000$

_____ tens \times _____ thousands = 40 _____

$80 \times 5,000 =$ _____

2. Determine if these equations are true or false. Defend your answer using your knowledge of place value and the commutative, associative, and/or distributive properties.

a. 35 hundreds = 5 tens \times 7 tens

b. $770 \times 6 = 77 \times 6 \times 100$

c. 50 tens \times 4 hundreds = 40 tens \times 5 hundreds

d. $24 \times 10 \times 90 = 90 \times 2,400$

3. Find the products. Show your thinking. The first row gives some ideas for showing your thinking.

a. 5×5
 $= 25$

$$\begin{aligned} 5 \times 50 \\ &= 25 \times 10 \\ &= 250 \end{aligned}$$

$$\begin{aligned} 50 \times 50 \\ &= (5 \times 10) \times (5 \times 10) \\ &= (5 \times 5) \times 100 \\ &= 2,500 \end{aligned}$$

$$\begin{aligned} 50 \times 500 \\ &= (5 \times 5) \times (10 \times 100) \\ &= 25,000 \end{aligned}$$

b. 80×5

80×50

800×500

$8,000 \times 50$

c. 637×3

$6,370 \times 30$

$6,370 \times 300$

$63,700 \times 300$

4. A concrete stepping stone measures 20 inches square. What is the area of 30 such tiles?

5. A number is 42,300 when multiplied by 10. Find the product of this number and 500.

A

Correct _____

Multiply.

1	$9 \times 10 =$		23	$73 \times 1,000 =$	
2	$9 \times 100 =$		24	$60 \times 10 =$	
3	$9 \times 1,000 =$		25	$600 \times 10 =$	
4	$8 \times 10 =$		26	$600 \times 100 =$	
5	$80 \times 10 =$		27	$65 \times 100 =$	
6	$80 \times 100 =$		28	$652 \times 100 =$	
7	$80 \times 1,000 =$		29	$342 \times 100 =$	
8	$7 \times 10 =$		30	$800 \times 100 =$	
9	$70 \times 10 =$		31	$800 \times 1,000 =$	
10	$700 \times 10 =$		32	$860 \times 1,000 =$	
11	$700 \times 100 =$		33	$867 \times 1,000 =$	
12	$700 \times 1,000 =$		34	$492 \times 1,000 =$	
13	$2 \times 10 =$		35	$34 \times 10 =$	
14	$30 \times 10 =$		36	$629 \times 10 =$	
15	$32 \times 10 =$		37	$94 \times 100 =$	
16	$4 \times 10 =$		38	$238 \times 100 =$	
17	$50 \times 10 =$		39	$47 \times 1,000 =$	
18	$54 \times 10 =$		40	$294 \times 1,000 =$	
19	$37 \times 10 =$		41	$174 \times 100 =$	
20	$84 \times 10 =$		42	$285 \times 1,000 =$	
21	$84 \times 100 =$		43	$951 \times 100 =$	
22	$84 \times 1,000 =$		44	$129 \times 1,000 =$	

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B Improvement _____ # Correct _____

Multiply.

1	$8 \times 10 =$		23	$37 \times 1,000 =$	
2	$8 \times 100 =$		24	$50 \times 10 =$	
3	$8 \times 1,000 =$		25	$500 \times 10 =$	
4	$7 \times 10 =$		26	$500 \times 100 =$	
5	$70 \times 10 =$		27	$56 \times 100 =$	
6	$70 \times 100 =$		28	$562 \times 100 =$	
7	$70 \times 1,000 =$		29	$432 \times 100 =$	
8	$6 \times 10 =$		30	$700 \times 100 =$	
9	$60 \times 10 =$		31	$700 \times 1,000 =$	
10	$600 \times 10 =$		32	$760 \times 1,000 =$	
11	$600 \times 100 =$		33	$765 \times 1,000 =$	
12	$600 \times 1,000 =$		34	$942 \times 1,000 =$	
13	$3 \times 10 =$		35	$74 \times 10 =$	
14	$20 \times 10 =$		36	$269 \times 10 =$	
15	$23 \times 10 =$		37	$49 \times 100 =$	
16	$5 \times 10 =$		38	$328 \times 100 =$	
17	$40 \times 10 =$		39	$37 \times 1,000 =$	
18	$45 \times 10 =$		40	$924 \times 1,000 =$	
19	$73 \times 10 =$		41	$147 \times 100 =$	
20	$48 \times 10 =$		42	$825 \times 1,000 =$	
21	$48 \times 100 =$		43	$651 \times 100 =$	
22	$48 \times 1,000 =$		44	$192 \times 1,000 =$	

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Name _____

Date _____

1. Round the factors to estimate the products.

a. $597 \times 52 \approx \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

A reasonable estimate for 597×52 is _____.

b. $1,103 \times 59 \approx \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

A reasonable estimate for $1,103 \times 59$ is _____.

c. $5,840 \times 25 \approx \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

A reasonable estimate for $5,840 \times 25$ is _____.

2. Complete the table using your understanding of place value and knowledge of rounding to estimate the product.

Factors	Rounded Factors	Estimate
a. $2,809 \times 42$	$3,000 \times 40$	120,000
b. $28,090 \times 420$		
c. $8,932 \times 59$		
d. 89 tens \times 63 tens		
e. 398 hundreds \times 52 tens		

3. For which of the following expressions would 200,000 be a reasonable estimate? Explain how you know.

$2,146 \times 12$

$21,467 \times 121$

$2,146 \times 121$

$21,477 \times 1,217$

4. Fill in the missing factors to find the given estimated product.

a. $571 \times 43 \approx \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 24,000$

b. $726 \times 674 \approx \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 490,000$

c. $8,379 \times 541 \approx \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 4,000,000$

5. There are 19,763 tickets available for a New York Knicks home game. If there are 41 home games in a season, about how many tickets are available for all the Knicks' home games?

6. Michael saves \$423 dollars a month for college.

- a. About how much money will he have saved after 4 years?

- b. Will your estimate be lower or higher than the actual amount Michael will save? How do you know?

Name _____

Date _____

1. Round the factors to estimate the products.

a. $697 \times 82 \approx \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

A reasonable estimate for 697×82 is .

b. $5,897 \times 67 \approx \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

A reasonable estimate for $5,897 \times 67$ is .

c. $8,840 \times 45 \approx \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

A reasonable estimate for $8,840 \times 45$ is .

2. Complete the table using your understanding of place value and knowledge of rounding to estimate the product.

Factors	Rounded Factors	Estimate
a. $3,409 \times 73$	$3,000 \times 70$	210,000
b. $82,290 \times 240$		
c. $9,832 \times 39$		
d. 98 tens \times 36 tens		
e. 893 hundreds \times 85 tens		

3. The estimated answer to a multiplication problem is 800,000. Which of the following expressions could result in this answer? Explain how you know.

$8,146 \times 12$

$81,467 \times 121$

$8,146 \times 121$

$81,477 \times 1,217$

4. Fill in the blank with the missing estimate.

a. $751 \times 34 \approx \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 24,000$

b. $627 \times 674 \approx \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 420,000$

c. $7,939 \times 541 \approx \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 4,000,000$

5. In a single season the New York Yankees sell an average of 42,362 tickets for each of their 81 home games. About how many tickets do they sell for an entire season of home games?

6. Raphael wants to buy a new car.

a. He needs a down payment of \$3,000. If he saves \$340 each month, about how many months will it take him to save the down payment?

b. His new car payment will be \$288 each month for five years. What is the total of these payments?

Name _____

Date _____




1. Draw a model. Then write the numerical expressions.

a. The sum of 8 and 7, doubled	b. 4 times the sum of 14 and 26
c. 3 times the difference between 37.5 and 24.5	d. The sum of 3 sixteens and 2 nines
e. The difference between 4 twenty-fives and 3 twenty-fives	f. Triple the sum of 33 and 27

2. Write the numerical expressions in words.

Expression	Words	The Value of the Expression
a. $12 \times (5 + 25)$		
b. $(62 - 12) \times 11$		
c. $(45 + 55) \times 23$		
d. $(30 \times 2) + (8 \times 2)$		

3. Compare the two expressions using $>$, $<$, or $=$. In the space beneath each pair of expressions, explain how you can compare without calculating. Draw a model if it helps you.

a. $24 \times (20 + 5)$		$(20 + 5) \times 12$
b. 18×27		20 twenty-sevens minus 1 twenty-seven
c. 19×9		3 nineteens, tripled

4. Mr. Huynh wrote *the sum of 7 fifteens and 38 fifteens* on the board.
- Draw a model and write the correct expression.

5. Two students wrote the following numerical expressions.
- Angeline: $(7 + 15) \times (38 + 15)$
- MeiLing: $15 \times (7 + 38)$

Are the students' answers equivalent to your answer in Problem 4(a)? Explain your answer.

6. A box contains 24 oranges. Mr. Lee ordered 8 boxes for his store and 12 boxes for his restaurant.
- Write an expression to show how to find the total number of oranges ordered.
 - Next week, Mr. Lee will both double the number of boxes he orders. Write a new expression to represent the number of oranges in next week's order.
 - Evaluate your expression from Part (b) to find the total number of oranges ordered in both weeks.

Name _____

Date _____



1. Draw a model then write the numerical expressions.

a. The sum of 21 and 4, doubled	b. 5 times the sum of 7 and 23
c. 2 times the difference between 49.5 and 37.5	d. The sum of 3 fifteens and 4 twos
e. The difference between 9 thirty-sevens and 8 thirty-sevens	f. Triple the sum of 45 and 55

2. Write the numerical expressions in words.

Expression	Words	The Value of the Expression
a. $10 \times (2.5 + 13.5)$		
b. $(98 - 78) \times 11$		
c. $(71 + 29) \times 26$		
d. $(50 \times 2) + (15 \times 2)$		

3. Compare the two expressions using $>$, $<$, or $=$. In the space beneath each pair of expressions, explain how you can compare without calculating. Draw a model if it helps you.

a. $93 \times (40 + 2)$		$(40 + 2) \times 39$
b. 61×25		60 twenty-fives minus 1 twenty-five

4. Larry claims that $(14 + 12) \times (8 + 12)$ and $(14 \times 12) + (8 \times 12)$ are equivalent because they have the same digits and the same operations.
- Is Larry correct? Explain your thinking.
 - Which expression is greater? How much greater?

Name _____

Date _____

1. Circle each expression that is not equivalent to the expression in **bold**.

a. **16×29**

29 sixteens

 $16 \times (30 - 1)$
 $(15 - 1) \times 29$
 $(10 \times 29) - (6 \times 29)$

b. **38×45**
 $(38 + 40) \times (38 + 5)$
 $(38 \times 40) + (38 \times 5)$
 $45 \times (40 + 2)$

45 thirty-eights

c. **74×59**
 $74 \times (50 + 9)$
 $74 \times (60 - 1)$
 $(74 \times 5) + (74 \times 9)$

59 seventy-fours

2. Solve using mental math. Draw a tape diagram and fill in the blanks to show your thinking. The first one was done for you.

a. $19 \times 25 =$ _____ twenty-fives

25	25	25	...	25	25
1	2	3	...	19	20

Think: 20 twenty-fives – 1 twenty-five.

$$= (\text{_____} \times 25) - (\text{_____} \times 25)$$

$$= \text{_____} - \text{_____} = \text{_____}$$

b. $24 \times 11 =$ _____ twenty-fours

Think: _____ twenty fours + _____ twenty four

$$= (\text{_____} \times 24) + (\text{_____} \times 24)$$

$$= \text{_____} + \text{_____} = \text{_____}$$

c. $79 \times 14 =$ _____ fourteens

Think: _____ fourteens – 1 fourteen

$= (\text{_____} \times 14) - (\text{_____} \times 14)$

$= \text{_____} - \text{_____} = \text{_____}$

d. $21 \times 75 =$ _____ seventy-fives

Think: _____ seventy-fives + _____ seventy-five

$= (\text{_____} \times 75) + (\text{_____} \times 75)$

$= \text{_____} + \text{_____} = \text{_____}$

3. Define the unit in word form and complete the sequence of problems as was done in Problems 3–4 in the lesson.

a. $19 \times 15 = 19$ _____

Think: 20 _____ – 1 _____

$= (20 \times \text{_____}) - (1 \times \text{_____})$

$= \text{_____} - \text{_____} = \text{_____}$

b. $14 \times 15 = 14$ _____

Think: 10 _____ + 4 _____

$= (10 \times \text{_____}) + (4 \times \text{_____})$

$= \text{_____} + \text{_____} = \text{_____}$

c. $25 \times 12 = 12$ _____

Think: 10 _____ + 2 _____

$= (10 \times \text{_____}) + (2 \times \text{_____})$

$= \text{_____} + \text{_____} = \text{_____}$

d. $18 \times 17 = 18$ _____

Think: 20 _____ – 2 _____

$= (20 \times \text{_____}) - (2 \times \text{_____})$

$= \text{_____} - \text{_____} = \text{_____}$

4. How can 14×50 help you find 14×49 ?
5. Solve mentally.
- a. $101 \times 15 =$ _____
- b. $18 \times 99 =$ _____
6. Saleem says 45×32 is the same as $(45 \times 3) + (45 \times 2)$. Explain Saleem's error using words, numbers, and pictures.
7. Juan delivers 174 newspapers every day. Edward delivers 126 more newspapers each day than Juan.
- a. Write an expression to show how many newspapers Edward will deliver in 29 days.
- b. Use mental math to solve. Show your thinking.

Name _____ Date _____

1. Circle each expression that is not equivalent to the expression in
- bold**
- .

a. **37×19**

37 nineteens

 $(30 \times 19) - (7 \times 29)$
 $37 \times (20 - 1)$
 $(40 - 2) \times 19$

b. **26×35**

35 twenty-sixes

 $(26 + 30) \times (26 + 5)$
 $(26 \times 30) + (26 \times 5)$
 $35 \times (20 + 60)$

c. **34×89**
 $34 \times (80 + 9)$
 $(34 \times 8) + (34 \times 9)$
 $34 \times (90 - 1)$

89 thirty-fours

2. Solve using mental math. Draw a tape diagram and fill in the blanks to show your thinking. The first one was done for you.

a. $19 \times 50 =$ _____ fifties

50	50	50	...	50	50
1	2	3	...	19	20

Think: 20 fifties – 1 fifties

$$= (\text{_____} \times 50) - (\text{_____} \times 50)$$

$$= \text{_____} - \text{_____} = \text{_____}$$

b. $11 \times 26 =$ _____ twenty-sixes

Think: _____ twenty-sixes + _____ twenty-sixes

$$= (\text{_____} \times 26) + (\text{_____} \times 26)$$

$$= \text{_____} + \text{_____} = \text{_____}$$

c. $49 \times 12 = \underline{\hspace{2cm}}$ twelves

Think: $\underline{\hspace{2cm}}$ twelves – 1 twelves

$$= (\underline{\hspace{2cm}} \times 12) - (\underline{\hspace{2cm}} \times 12)$$

$$= \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

d. $12 \times 25 = \underline{\hspace{2cm}}$ seventy-fives

Think: $\underline{\hspace{2cm}}$ twenty-fives + $\underline{\hspace{2cm}}$ twenty-fives

$$= (\underline{\hspace{2cm}} \times 25) + (\underline{\hspace{2cm}} \times 25)$$

$$= \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

3. Define the unit in word form and complete the sequence of problems as was done in Problems 3–4 in the lesson.

a. $29 \times 12 = 29 \underline{\hspace{2cm}}$

Think: $30 \underline{\hspace{2cm}} - 1 \underline{\hspace{2cm}}$

$$= (30 \times \underline{\hspace{2cm}}) - (1 \times \underline{\hspace{2cm}})$$

$$= \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

b. $11 \times 31 = 31 \underline{\hspace{2cm}}$

Think: $30 \underline{\hspace{2cm}} + 1 \underline{\hspace{2cm}}$

$$= (30 \times \underline{\hspace{2cm}}) + (1 \times \underline{\hspace{2cm}})$$

$$= \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

c. $19 \times 11 = 19 \underline{\hspace{2cm}}$

Think: $20 \underline{\hspace{2cm}} - 1 \underline{\hspace{2cm}}$

$$= (20 \times \underline{\hspace{2cm}}) - (1 \times \underline{\hspace{2cm}})$$

$$= \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

d. $50 \times 13 = 13 \underline{\hspace{2cm}}$

Think: $10 \underline{\hspace{2cm}} + 3 \underline{\hspace{2cm}}$

$$= (10 \times \underline{\hspace{2cm}}) + (3 \times \underline{\hspace{2cm}})$$

$$= \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

4. How can 12×50 help you find 12×49 ?
5. Solve mentally.
- a. $16 \times 99 =$ _____
- b. $20 \times 101 =$ _____
6. Joy is helping her father to build a deck that measures 14 ft by 19 ft. Find the area of the deck using a mental strategy. Explain your thinking.
7. The Lason School turns 101 years old in June. In order to celebrate, they ask each of the 23 classes to collect 101 items and make a collage. How many total items will be in the collage? Use mental math to solve. Explain your thinking.

Estimate and then multiply.

1	$29 \times 11 \approx$		23	$801 \times 31 \approx$	
2	$29 \times 21 \approx$		24	$803 \times 31 \approx$	
3	$29 \times 31 \approx$		25	$703 \times 31 \approx$	
4	$23 \times 12 \approx$		26	$43 \times 34 \approx$	
5	$23 \times 22 \approx$		27	$53 \times 34 \approx$	
6	$23 \times 32 \approx$		28	$53 \times 31 \approx$	
7	$23 \times 42 \approx$		29	$53 \times 51 \approx$	
8	$37 \times 13 \approx$		30	$93 \times 31 \approx$	
9	$37 \times 23 \approx$		31	$913 \times 31 \approx$	
10	$36 \times 24 \approx$		32	$73 \times 31 \approx$	
11	$24 \times 36 \approx$		33	$723 \times 31 \approx$	
12	$43 \times 11 \approx$		34	$78 \times 34 \approx$	
13	$43 \times 21 \approx$		35	$798 \times 34 \approx$	
14	$403 \times 21 \approx$		36	$62 \times 33 \approx$	
15	$303 \times 21 \approx$		37	$642 \times 33 \approx$	
16	$203 \times 21 \approx$		38	$374 \times 64 \approx$	
17	$41 \times 11 \approx$		39	$64 \times 374 \approx$	
18	$41 \times 21 \approx$		40	$740 \times 36 \approx$	
19	$41 \times 31 \approx$		41	$750 \times 36 \approx$	
20	$401 \times 31 \approx$		42	$65 \times 680 \approx$	
21	$501 \times 31 \approx$		43	$849 \times 84 \approx$	
22	$601 \times 31 \approx$		44	$85 \times 849 \approx$	

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Name _____

Date _____

1. Draw an area model and then solve using the standard algorithm. Use arrows to match the partial products from the area model to the partial products of the algorithm.

a. 34×21

$$\begin{array}{r} 34 \\ \times 21 \\ \hline \end{array}$$

b. 434×21

$$\begin{array}{r} 434 \\ \times 21 \\ \hline \end{array}$$

2. Solve using the standard algorithm.

a. $431 \times 12 =$ _____

b. $123 \times 23 =$ _____

c. $312 \times 32 =$ _____

3. Betty saves \$161 a month. She saved \$141 less each month than Jack. How much will Jack save in 2 years?
4. Farmer Brown feeds 12.1 kg of alfalfa to each of his 2 horses daily. How many kilograms of alfalfa will all his horses have eaten after 21 days? Draw an area model to solve.

Name _____

Date _____

1. Draw an area model then solve using the standard algorithm. Use arrows to match the partial products from the area model to the partial products in the algorithm.

a. $24 \times 21 =$ _____

$$\begin{array}{r} 24 \\ \times 21 \\ \hline \end{array}$$

b. $242 \times 21 =$ _____

$$\begin{array}{r} 242 \\ \times 21 \\ \hline \end{array}$$

2. Solve using the standard algorithm.

a. $314 \times 22 =$ _____

b. $413 \times 22 =$ _____

c. $213 \times 32 =$ _____

3. A young snake measures 0.23 m long. During the course of his lifetime, he will grow to be 13 times his current length. What will his length be when he's full grown?
4. Zenin earns \$142 per shift at his new job. During a pay period, he works 12 shifts. What would his pay be for that period?

Solve.

1	$5 \times 100 =$		23	$5000 - 50 =$	
2	$500 - 5 =$		24	$50 \times 99 =$	
3	$5 \times 99 =$		25	$80 \times 100 =$	
4	$3 \times 100 =$		26	$80 \times 99 =$	
5	$300 - 3 =$		27	$60 \times 100 =$	
6	$3 \times 99 =$		28	$60 \times 99 =$	
7	$2 \times 100 =$		29	$11 \times 100 =$	
8	$200 - 2 =$		30	$1100 - 11 =$	
9	$2 \times 99 =$		31	$11 \times 99 =$	
10	$6 \times 100 =$		32	$21 \times 100 =$	
11	$600 - 6 =$		33	$2100 - 21 =$	
12	$6 \times 99 =$		34	$21 \times 99 =$	
13	$4 \times 100 =$		35	$31 \times 100 =$	
14	$4 \times 99 =$		36	$31 \times 99 =$	
15	$7 \times 100 =$		37	$71 \times 100 =$	
16	$7 \times 99 =$		38	$71 \times 99 =$	
17	$9 \times 100 =$		39	$42 \times 100 =$	
18	$9 \times 99 =$		40	$42 \times 99 =$	
19	$8 \times 100 =$		41	$53 \times 99 =$	
20	$8 \times 99 =$		42	$64 \times 99 =$	
21	$5 \times 100 =$		43	$75 \times 99 =$	
22	$50 \times 100 =$		44	$97 \times 99 =$	

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Name _____

Date _____

1. Draw an area model, and then solve using the standard algorithm. Use arrows to match the partial products from your area model to the partial products in the algorithm.

a. 48×35

$$\begin{array}{r} 48 \\ \times 35 \\ \hline \end{array}$$

b. 648×35

$$\begin{array}{r} 648 \\ \times 35 \\ \hline \end{array}$$

2. Solve using the standard algorithm.

a. 758×92

c. 476×65

b. 958×94

d. 547×64

3. Carpet costs \$16 a square foot. A rectangular floor is 14 feet long by 16 feet wide. How much would it cost to carpet the floor?
4. General admission to The American Museum of Natural History is \$19.
- a. If a group of 125 students visits the museum, how much will the group's tickets cost?
- b. If the group also purchases IMAX movie tickets for an additional \$4 per student, what is the new total cost of all the tickets? Write an expression that shows how you calculated the new price.

A

Correct _____

Multiply.

1	$2 \times 10 =$		23	$33 \times 20 =$	
2	$12 \times 10 =$		24	$33 \times 200 =$	
3	$12 \times 100 =$		25	$24 \times 10 =$	
4	$4 \times 10 =$		26	$24 \times 20 =$	
5	$34 \times 10 =$		27	$24 \times 100 =$	
6	$34 \times 100 =$		28	$24 \times 200 =$	
7	$7 \times 10 =$		29	$23 \times 30 =$	
8	$27 \times 10 =$		30	$23 \times 300 =$	
9	$27 \times 100 =$		31	$71 \times 2 =$	
10	$3 \times 10 =$		32	$71 \times 20 =$	
11	$3 \times 2 =$		33	$14 \times 2 =$	
12	$3 \times 20 =$		34	$14 \times 3 =$	
13	$13 \times 10 =$		35	$14 \times 30 =$	
14	$13 \times 2 =$		36	$14 \times 300 =$	
15	$13 \times 20 =$		37	$82 \times 20 =$	
16	$13 \times 100 =$		38	$15 \times 300 =$	
17	$13 \times 200 =$		39	$71 \times 600 =$	
18	$2 \times 4 =$		40	$18 \times 40 =$	
19	$22 \times 4 =$		41	$75 \times 30 =$	
20	$22 \times 40 =$		42	$84 \times 300 =$	
21	$22 \times 400 =$		43	$87 \times 60 =$	
22	$33 \times 2 =$		44	$79 \times 800 =$	

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B

Improvement _____ # Correct _____

Multiply.

1	$3 \times 10 =$		23	$44 \times 20 =$	
2	$13 \times 10 =$		24	$44 \times 200 =$	
3	$13 \times 100 =$		25	$42 \times 10 =$	
4	$5 \times 10 =$		26	$42 \times 20 =$	
5	$35 \times 10 =$		27	$42 \times 100 =$	
6	$35 \times 100 =$		28	$42 \times 200 =$	
7	$8 \times 10 =$		29	$32 \times 30 =$	
8	$28 \times 10 =$		30	$32 \times 300 =$	
9	$28 \times 100 =$		31	$81 \times 2 =$	
10	$4 \times 10 =$		32	$81 \times 20 =$	
11	$4 \times 2 =$		33	$13 \times 3 =$	
12	$4 \times 20 =$		34	$13 \times 4 =$	
13	$14 \times 10 =$		35	$13 \times 40 =$	
14	$14 \times 2 =$		36	$13 \times 400 =$	
15	$14 \times 20 =$		37	$72 \times 30 =$	
16	$14 \times 100 =$		38	$15 \times 300 =$	
17	$14 \times 200 =$		39	$81 \times 600 =$	
18	$2 \times 3 =$		40	$16 \times 40 =$	
19	$22 \times 3 =$		41	$65 \times 30 =$	
20	$22 \times 30 =$		42	$48 \times 300 =$	
21	$22 \times 300 =$		43	$89 \times 60 =$	
22	$44 \times 2 =$		44	$76 \times 800 =$	

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Name _____ Date _____

1. Draw an area model, and then solve using the standard algorithm. Use arrows to match the partial products from the area model to the partial products in the algorithm.

a. 481×352

$$\begin{array}{r} 481 \\ \times 352 \\ \hline \end{array}$$

b. 481×302

$$\begin{array}{r} 481 \\ \times 302 \\ \hline \end{array}$$

- c. Both 1(a) and 1(b) have three-digit multipliers. Why are there three partial products in 1(a) and only two partial products in 1(b)?

2. Solve by drawing the area model and using the standard algorithm.

a. $8,401 \times 305$

$$8,401$$

$$\times \underline{305}$$

b. $7,481 \times 350$

$$7,481$$

$$\times \underline{350}$$

3. Solve using the standard algorithm.

a. 346×27

c. 346×207

b. $1,346 \times 297$

d. $1,346 \times 207$

4. A school district purchased 615 new laptops for their mobile labs. Each computer cost \$409. What's the total cost for all of the laptops?
5. A publisher prints 1,512 copies of a book in each print run. If they print 305 runs, how many books will be printed?
6. As of the 2010 census, there were 3,669 people living in Marlboro, New York. Brooklyn, New York, has 681 times as many people. How many more people live in Brooklyn than in Marlboro?

Name _____

Date _____

1. Draw an area model, and then solve using the standard algorithm. Use arrows to match the partial products from your area model to the partial products in your algorithm.

a. $273 \times 346 =$ _____

2 7 3

 $\times \underline{346}$

b. $273 \times 306 =$ _____

2 7 3

 $\times \underline{306}$

- c. Both Parts (a) and (b) have three-digit multipliers. Why are there three partial products in (a) and only two partial products in (b)?

2. Solve by drawing the area model and using the standard algorithm.

a. $7,481 \times 290 =$ _____

b. $7,018 \times 209 =$ _____

3. Solve using the standard algorithm.

a. 426×357

c. 426×307

b. $1,426 \times 357$

d. $1,426 \times 307$

4. The Hudson Valley Renegades Stadium holds a maximum of 4,505 people. During the heights of their popularity, they sold out 219 consecutive games. How many tickets were sold during this time?

5. At the farmer's market, each of the 94 vendors makes \$502 in profit each weekend. How much profit will all vendors make on Saturday?

Name _____

Date _____

1. Estimate the product first. Solve by using the standard algorithm. Use your estimate to check the reasonableness of the product.

<p>a. 213×328</p> <p>$\approx 200 \times 300$ $= 60,000$</p> <p>$\begin{array}{r} 213 \\ \times 328 \\ \hline \end{array}$</p>	<p>b. 662×372</p>	<p>c. 739×442</p>
<p>d. 807×491</p>	<p>e. $3,502 \times 656$</p>	<p>f. $4,390 \times 741$</p>
<p>g. $530 \times 2,075$</p>	<p>h. $4,004 \times 603$</p>	<p>i. $987 \times 3,105$</p>

2. Each container holds 1 L 275 mL of water. How much water is in 609 identical containers? Find the difference between your estimated product and precise product.

3. A club had some money to purchase new chairs. After buying 355 chairs at \$199 each, there was \$1,068 remaining. How much money did the club have at first?

4. So far, Carmella has collected 14 boxes of baseball cards. Each box has 315 cards in it. Carmella estimates that she has about 3,000 cards, so she buys 6 albums that hold 500 cards each.
 - a. Will the albums have enough space for all of her cards? Why or why not?

 - b. How many cards does Carmella have?

 - c. How many albums will she need for all of her baseball cards?

Name _____

Date _____

1. Estimate the product first. Solve by using the standard algorithm. Use your estimate to check the reasonableness of the product.

<p>a. 312×149</p> <p>$\approx 300 \times 100$ $= 30,000$</p> <p>$\begin{array}{r} 312 \\ \times 149 \\ \hline \end{array}$</p>	<p>b. 743×295</p>	<p>c. 428×637</p>
<p>d. 691×305</p>	<p>e. $4,208 \times 606$</p>	<p>f. $3,068 \times 523$</p>
<p>g. $430 \times 3,064$</p>	<p>h. $3,007 \times 502$</p>	<p>i. $254 \times 6,104$</p>

2. When multiplying 1,729 times 308, Clayton got a product of 53,253. Without calculating, does his product seem reasonable? Explain your thinking.
3. A publisher prints 1,912 copies of a book in each print run. If they print 305 runs, the manager wants to know about how many books will be printed. What's a reasonable estimate?

Name _____

Date _____

Solve.

1. An office space in New York City measures 48 feet by 56 feet. If it sells for \$565 per square foot, what is the total cost of the office space?

2. Gemma and Leah are both jewelry makers. Gemma made 106 beaded necklaces. Leah made 39 more necklaces than Gemma.
 - a. Each necklace they make has exactly 104 beads on it. How many beads did both girls use altogether while making their necklaces?

 - b. At a recent craft fair, Gemma sold each of her necklaces for \$14. Leah sold each of her necklaces for 10 dollars more. Who made more money at the craft fair? How much more?

3. Peng bought 26 treadmills for her new fitness center at \$1,334 each. Then she bought 19 stationary bikes for \$749 each. How much did she spend on her new equipment? Write an expression, and then solve.

4. A Hudson Valley farmer has 26 employees. He pays each employee \$410 per week. After paying his workers for one week, the farmer has \$162 left in his bank account. How much money did he have at to begin with?
5. Frances is sewing a border around 2 rectangular tablecloths that each measure 9 feet long by 6 feet wide. If it takes her 3 minutes to sew on 1 inch of border, how many minutes will it take her to complete her sewing project? Write an expression, and then solve.
6. Each grade level at Hooperville Schools has 298 students.
- If there are 13 grade levels, how many students attend Hooperville Schools?
 - A nearby district, Willington, is much larger. They have 12 times as many students. How many students attend schools in Willington?

Name _____

Date _____

Solve.

1. Jeffery bought 203 sheets of stickers. Each sheet has a dozen stickers. He gave away 907 stickers to his family and friends on Valentine's Day. How many stickers does Jeffery have remaining?

2. During the 2011 season, a quarterback passed for 302 yards per game. He played in all 16 regular season games that year.
 - a. How many total yards did the quarterback pass for?

 - b. If he matches this passing total for each of the next 13 seasons, how many yards will he pass for in his career?

3. Bao saved \$179 a month. He saved \$145 less than Ada each month. How much would Ada save in three and a half years?

4. Mrs. Williams is knitting a blanket for her newborn granddaughter. The blanket is 2.25 meters long and 1.8 meters wide. What is the area of the blanket? Write the answer in centimeters.

5. Use the chart to solve.

Soccer Field Dimensions

	FIFA Regulation (in yards)	New York State High Schools (in yards)
Minimum Length	110	100
Maximum Length	120	120
Minimum Width	70	55
Maximum Width	80	80

- a. Write an expression to find the difference in the maximum area and minimum area of a NYS high school soccer field. Then evaluate your expression.
- b. Would a field with a width of 75 yards and an area of 7,500 square yards be within FIFA regulation? Why or why not?
- c. It costs \$26 to fertilize, water, mow, and maintain each square yard of a full size FIFA field (with maximum dimensions) before each game. How much will it cost to prepare the field for next week's match?

A

Correct _____

Divide.

1	$30 \div 10 =$	23	$480 \div 4 =$
2	$430 \div 10 =$	24	$480 \div 40 =$
3	$4,300 \div 10 =$	25	$6,300 \div 3 =$
4	$4,300 \div 100 =$	26	$6,300 \div 30 =$
5	$43,000 \div 100 =$	27	$6,300 \div 300 =$
6	$50 \div 10 =$	28	$8,400 \div 2 =$
7	$850 \div 10 =$	29	$8,400 \div 20 =$
8	$8,500 \div 10 =$	30	$8,400 \div 200 =$
9	$8,500 \div 100 =$	31	$96,000 \div 3 =$
10	$85,000 \div 100 =$	32	$96,000 \div 300 =$
11	$600 \div 10 =$	33	$96,000 \div 30 =$
12	$60 \div 3 =$	34	$900 \div 30 =$
13	$600 \div 30 =$	35	$1,200 \div 30 =$
14	$4,000 \div 100 =$	36	$1,290 \div 30 =$
15	$40 \div 2 =$	37	$1,800 \div 300 =$
16	$4,000 \div 200 =$	38	$8,000 \div 200 =$
17	$240 \div 10 =$	39	$12,000 \div 200 =$
18	$24 \div 2 =$	40	$12,800 \div 200 =$
19	$240 \div 20 =$	41	$2,240 \div 70 =$
20	$3,600 \div 100 =$	42	$18,400 \div 800 =$
21	$36 \div 3 =$	43	$21,600 \div 90 =$
22	$3,600 \div 300 =$	44	$25,200 \div 600 =$

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B

Improvement _____ # Correct _____

Divide.

1	$20 \div 10 =$	23	$840 \div 4 =$
2	$420 \div 10 =$	24	$840 \div 40 =$
3	$4,200 \div 10 =$	25	$3,600 \div 3 =$
4	$4,200 \div 100 =$	26	$3,600 \div 30 =$
5	$42,000 \div 100 =$	27	$3,600 \div 300 =$
6	$40 \div 10 =$	28	$4,800 \div 2 =$
7	$840 \div 10 =$	29	$4,800 \div 20 =$
8	$8,400 \div 10 =$	30	$4,800 \div 200 =$
9	$8,400 \div 100 =$	31	$69,000 \div 3 =$
10	$84,000 \div 100 =$	32	$69,000 \div 300 =$
11	$900 \div 10 =$	33	$69,000 \div 30 =$
12	$90 \div 3 =$	34	$800 \div 40 =$
13	$900 \div 30 =$	35	$1,200 \div 40 =$
14	$6,000 \div 100 =$	36	$1,280 \div 40 =$
15	$60 \div 2 =$	37	$1,600 \div 400 =$
16	$6,000 \div 200 =$	38	$8,000 \div 200 =$
17	$240 \div 10 =$	39	$14,000 \div 200 =$
18	$24 \div 2 =$	40	$14,600 \div 200 =$
19	$240 \div 20 =$	41	$2,560 \div 80 =$
20	$6,300 \div 100 =$	42	$16,100 \div 700 =$
21	$63 \div 3 =$	43	$14,400 \div 60 =$
22	$6,300 \div 300 =$	44	$37,800 \div 900 =$

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Name _____

Date _____

1. Divide. Draw number disks to show your thinking for (a) and (c). You may draw disks on your personal white board to solve the others if necessary.

a. $500 \div 10$	b. $360 \div 10$
c. $12,000 \div 100$	d. $450,000 \div 100$
e. $700,000 \div 1,000$	f. $530,000 \div 100$

2. Divide. The first one is done for you.

a. $12,000 \div 30$ $= 12,000 \div 10 \div 3$ $= 1,200 \div 3$ $= 400$	b. $12,000 \div 300$	c. $12,000 \div 3,000$
d. $560,000 \div 70$	e. $560,000 \div 700$	f. $560,000 \div 7,000$

g. $28,000 \div 40$	h. $450,000 \div 500$	i. $810,000 \div 9,000$
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3. The floor of a rectangular banquet hall has an area of $3,600 \text{ m}^2$. The length is 90 m.
- What is the width of the banquet hall?
 - A square banquet hall has the same area. What is its length?
 - A third rectangular banquet hall has a perimeter of 3,600 m. What is the width if the length is 5 times the width?

4. Two fifth graders solved $400,000 \div 800$. Carter said the answer is 500, while Kim said the answer is 5,000.

a. Who has the correct answer? Explain your thinking.

b. What if the problem is $4,000,000 \div 8,000$? What is the quotient?

Name _____

Date _____

1. Divide. Draw number disks to show your thinking for (a) and (c). You may draw disks on your personal white board to solve the others if necessary.

a. $300 \div 10$	b. $450 \div 10$
c. $18,000 \div 100$	d. $730,000 \div 100$
e. $900,000 \div 1,000$	f. $680,000 \div 1,000$

2. Divide. The first one is done for you.

a. $18,000 \div 20$ $= 18,000 \div 10 \div 2$ $= 1,800 \div 2$ $= 900$	b. $18,000 \div 200$	c. $18,000 \div 2,000$
d. $420,000 \div 60$	e. $420,000 \div 600$	f. $420,000 \div 6,000$

g. $24,000 \div 30$	h. $560,000 \div 700$	i. $450,000 \div 9,000$

3. A stadium holds 50,000 people. The stadium is divided into 250 different seating sections. How many seats are in each section?
4. Over the course of a year, a tractor-trailer commutes 160,000 miles across America.
- a. Assuming a trucker changes his tires every 40,000 miles, and that he starts with a brand new set of tires, how many sets of tires will he use in a year?
- b. If the trucker changes the oil every 10,000 miles and he starts the year with a fresh oil change, how many times will he change the oil in a year?

Name _____

Date _____

1. Estimate the quotient for the following problems. Round the divisor first.

<p>a. $609 \div 21$</p> <p>$\approx 600 \div 20$</p> <p>$= 30$</p>	<p>b. $913 \div 29$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>c. $826 \div 37$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>
<p>d. $141 \div 73$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>e. $241 \div 58$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>f. $482 \div 62$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>
<p>g. $656 \div 81$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>h. $799 \div 99$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>i. $635 \div 95$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>
<p>j. $311 \div 76$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>k. $648 \div 83$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>l. $143 \div 35$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>

m. $525 \div 25$ \approx _____ \div _____ $=$ _____	n. $552 \div 85$ \approx _____ \div _____ $=$ _____	o. $667 \div 11$ \approx _____ \div _____ $=$ _____
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2. A video game store has a budget of \$825 and would like to purchase new video games. If each video game costs \$41, estimate the total number of video games the store can purchase with their budget. Explain your thinking.
3. Jackson estimated $637 \div 78$ as $640 \div 80$. He reasoned that 64 tens divided by 8 tens should be 8 tens. Is Jackson's reasoning correct? If so, explain why. If not, explain a correct solution.

Name _____

Date _____

1. Estimate the quotient for the following problems. The first one is done for you.

<p>a. $821 \div 41$</p> <p>$\approx 800 \div 40$</p> <p>$= 20$</p>	<p>b. $617 \div 23$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>c. $821 \div 39$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>
<p>d. $482 \div 52$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>e. $531 \div 48$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>f. $141 \div 73$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>
<p>g. $476 \div 81$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>h. $645 \div 69$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>i. $599 \div 99$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>
<p>j. $301 \div 26$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>k. $729 \div 81$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>l. $636 \div 25$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>

<p>m. $835 \div 89$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>n. $345 \div 72$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>	<p>o. $559 \div 11$</p> <p>\approx _____ \div _____</p> <p>$=$ _____</p>
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2. Mrs. Johnson spent \$611 buying lunch for 78 students. If all of the lunches were the same cost, about how much did she spend on each lunch?
3. An oil well produces 172 gallons of oil every day. A standard oil barrel holds 42 gallons of oil. About how many barrels of oil will the well produce in one day? Explain your thinking.

Name _____

Date _____

1. Estimate the quotient for the following problems. The first one is done for you.

<p>a. $5,738 \div 21$</p> <p>$\approx 6,000 \div 20$</p> <p>$= 300$</p>	<p>b. $2,659 \div 28$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>c. $9,155 \div 34$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>
<p>d. $1,463 \div 53$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>e. $2,525 \div 64$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>f. $2,271 \div 72$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>
<p>g. $4,901 \div 75$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>h. $8,515 \div 81$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>i. $8,515 \div 89$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>
<p>j. $3,925 \div 68$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>k. $5,124 \div 81$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>l. $4,945 \div 93$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>
<p>m. $5,397 \div 94$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>n. $6,918 \div 86$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>o. $2,806 \div 15$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>

2. A swimming pool requires 672 ft^2 of floor space. The length of the swimming pool is 32 ft. Estimate the width of the swimming pool.
3. Janice bought 28 apps for her phone that, altogether, used 1,348 MB of space.
- If each app used the same amount of space, about how many MB of memory did each app use? Show how you estimated.
 - If half of the apps were free and the other half were \$1.99 each, about how much did she spend?
4. A quart of paint covers about 85 square feet. About how many quarts would you need to cover a fence with an area of 3,817 square feet?
5. Peggy has saved \$9,215. If she is paid \$45 an hour, about how many hours did she work?

Name _____

Date _____

1. Estimate the quotient for the following problems. The first one is done for you.

<p>a. $8,328 \div 41$</p> <p>$\approx 8,000 \div 40$</p> <p>$= 200$</p>	<p>b. $2,109 \div 23$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>c. $8,215 \div 38$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>
<p>d. $3,861 \div 59$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>e. $2,899 \div 66$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>f. $5,576 \div 92$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>
<p>g. $5,086 \div 73$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>h. $8,432 \div 81$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>i. $9,032 \div 89$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>
<p>j. $2,759 \div 48$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>k. $8,194 \div 91$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>l. $4,368 \div 63$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>
<p>m. $6,537 \div 74$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>n. $4,998 \div 48$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>	<p>o. $6,106 \div 25$</p> <p>$\approx \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$</p> <p>$= \underline{\hspace{2cm}}$</p>

2. 91 boxes of apples hold a total of 2,605 apples. Assuming each box has about the same number of apples, estimate the number of apples in each box.
3. A wild tiger can eat up to 55 pounds of meat in a day. About how many days would it take for a tiger to eat the following prey?

Prey	Weight of Prey	Number of Days
Eland Antelope	1,754 pounds	
Boar	661 pounds	
Chital Deer	183 pounds	
Water Buffalo	2,322 pounds	

Name _____

Date _____

1. Divide, then check. The first one is done for you.

a. $41 \div 30$

Check:

$$\begin{array}{r} 1 \text{ R } 11 \\ 30 \overline{) 41} \\ \underline{30} \\ 11 \end{array}$$

$30 \times 1 = 30$

$30 + 11 = 41$

b. $80 \div 30$

c. $71 \div 50$

d. $270 \div 30$

e. $643 \div 80$

f. $215 \div 90$

2. Terry says the solution to $299 \div 40$ is 6 R59. His work is shown below. Explain Terry's error in thinking, and then find the correct quotient using the space on the right.

$$\begin{array}{r} 6 \\ 40 \overline{) 299} \\ \underline{240} \\ 59 \end{array}$$

$$40 \overline{) 299}$$

3. A number divided by 80 has a quotient of 7 with 4 as a remainder. Find the number.

4. While swimming a 2 km race, Adam changes from breaststroke to butterfly every 200 m. How many times did he switch strokes during the first half of the race?

Name _____

Date _____

1. Divide, then check using multiplication. The first one is done for you.

a. $71 \div 20$

Check:

$$\begin{array}{r} 3 \text{ R } 11 \\ 20 \overline{) 71} \\ \underline{60} \\ 11 \end{array}$$

$20 \times 3 = 60$

$60 + 11 = 71$

b. $90 \div 40$

c. $95 \div 60$

d. $280 \div 30$

e. $437 \div 60$

f. $346 \div 80$

2. A number divided by 40 has a quotient of 6 with a remainder of 16. Find the number.
3. A shipment of 288 textbooks has been delivered. Each of the 10 classrooms will receive an equal share of the books, with any extra books being stored in the bookroom. After the texts have been distributed to the classrooms, how many will be stored in the bookroom?
4. How many sixties are in two hundred forty-four?

Name _____

Date _____

1. Divide, then check with multiplication. The first one is done for you.

a. $65 \div 17$

d. $84 \div 32$

$$\begin{array}{r} 3 \text{ R } 14 \\ 17 \overline{) 65} \\ \underline{- 51} \\ 14 \end{array}$$

Check:

$17 \times 3 = 51$

$51 + 14 = 65$

b. $49 \div 21$

e. $77 \div 25$

c. $78 \div 39$

f. $68 \div 17$

2. When dividing 82 by 43, Linda estimated the quotient to be 2. Examine Linda's work and explain what she needs to do next. On the right, show how you would solve the problem.

Linda's estimation:

$$\begin{array}{r} 2 \\ 40 \overline{) 80} \\ \underline{80} \\ 0 \end{array}$$

Linda's work:

$$\begin{array}{r} 2 \\ 43 \overline{) 82} \\ \underline{86} \\ ? \end{array}$$

Your work:

$$\begin{array}{r} 2 \\ 43 \overline{) 82} \\ \underline{86} \\ ? \end{array}$$

3. A number divided by 43 has a quotient of 3 with 28 as a remainder. Find the number. Show your work.
4. Write another division problem that has a quotient of 3 and a remainder of 28.
5. Mrs. Silverstein sold 91 cupcakes at a food fair. The cupcakes were sold in boxes of "a baker's dozen," which is 13. She sold all the cupcakes at \$15 per box. How much money did she receive?

Name _____ Date _____

1. Divide, then check with multiplication. The first one is done for you.

a. $72 \div 31$

d. $67 \div 19$

$$\begin{array}{r} 31 \overline{) 72} \quad \text{R } 10 \\ \underline{62} \\ 10 \end{array}$$

Check:

$31 \times 2 = 62$

$62 + 10 = 72$

b. $89 \div 21$

e. $79 \div 25$

c. $94 \div 33$

f. $83 \div 21$

2. A 189-square-foot rectangular office has a length of 21 feet. What is the width of the office?
3. While preparing for a morning conference, Principal Corsetti is laying out 15 dozen bagels on square plates. Each plate can hold 14 bagels.
- a. How many plates of bagels will Mr. Corsetti have?
- b. How many more bagels would be needed to fill the final plate with bagels?

Name _____

Date _____

1. Divide, then check using multiplication. The first one is done for you.

a. $258 \div 47$

$$\begin{array}{r} 5 \text{ R } 23 \\ 47 \overline{) 258} \\ \underline{- 235} \\ 23 \end{array}$$

Check:

$$47 \times 5 = 235$$

$$235 + 23 = 258$$

b. $148 \div 67$

c. $591 \div 73$

d. $759 \div 94$

e. $653 \div 74$

f. $257 \div 36$

2. Generate and solve at least one more division problem with the same quotient and remainder as the one below. Explain your thought process.

$$\begin{array}{r} 8 \\ 58 \overline{) 475} \\ \underline{- 464} \\ 11 \end{array}$$

3. Assume that Mrs. Giang's car travels 14 miles on each gallon of gas. If she travels to visit her niece who lives 133 miles away, how many gallons of gas will Mrs. Giang need to make the round trip?

gas. If she
gallons of gas

4. Louis brings 79 pencils to school. After he gives each of his 15 classmates an equal number of pencils, he will give any leftover pencils to his teacher.
- a. How many pencils will Louis' teacher receive?
- b. If Louis decides instead to take an equal share of the pencils along with his classmates, will his teacher receive more pencils or fewer pencils? Show your thinking.

Name _____

Date _____

1. Divide, then check using multiplication. The first one is done for you.

a. $129 \div 21$

$$\begin{array}{r} 6 \text{ R } 3 \\ 21 \overline{) 129} \\ \underline{- 126} \\ 3 \end{array}$$

Check:

$$21 \times 6 = 126$$

$$126 + 3 = 129$$

b. $158 \div 37$

c. $261 \div 49$

d. $574 \div 82$

e. $464 \div 58$

f. $640 \div 9$

2. It takes Juwan exactly 35 minutes by car to get to his grandmother's. The nearest parking area is a 4-minute walk from her apartment. One week he visited more often. He realized that he spent 5 hours and 12 minutes traveling to her apartment and then back home. How many round trips did he make to visit his grandmother?
3. How many eighty-fours are in 672?

Name _____

Date _____

1. Divide, then check using multiplication. The first one is done for you.

a. $580 \div 17$

Check:

$$\begin{array}{r} 34 \text{ R}2 \\ 17 \overline{) 580} \\ \underline{- 51} \\ 70 \\ \underline{- 68} \\ 2 \end{array}$$

$$34 \times 17 = 578$$

$$578 + 2 = 580$$

b. $730 \div 32$

c. $940 \div 28$

d. $553 \div 23$

e. $704 \div 46$

f. $614 \div 15$

2. Halle solved $664 \div 48$ below. She got a quotient of 13 with a remainder of 40. How could she use her work below to solve $659 \div 48$ without redoing the work? Explain your thinking.

$$\begin{array}{r} 13 \\ 48 \overline{) 664} \\ \underline{- 48} \\ 184 \\ \underline{- 144} \\ 40 \end{array}$$

3. 27 students are learning to make balloon animals. There are 172 balloons to be shared equally among the students.
- a. How many balloons are left over after sharing them equally?
- b. If each student needs 7 balloons, how many more balloons are needed? Explain how you know.

Name _____

Date _____

1. Divide, then check using multiplication. The first one is done for you.

a. $487 \div 21$

$$\begin{array}{r} 23 \text{ R}4 \\ 21 \overline{) 487} \\ \underline{- 42} \\ 67 \\ \underline{- 63} \\ 4 \end{array}$$

Check:

$$21 \times 23 = 483$$

$$483 + 4 = 487$$

b. $485 \div 15$

c. $700 \div 21$

d. $399 \div 31$

e. $820 \div 42$

f. $908 \div 56$

- When dividing 2,458 by 51, a student finds a quotient of 48 with a remainder of 11. Check the student's work, and use the check to find the error in their solution.
- A baker was going to arrange 432 desserts into rows of 28. The baker divides 432 by 28 and gets a quotient of 15 with remainder 12. Explain what the quotient and remainder represent.

3. A baker was going to arrange 432 desserts into rows of 28. The baker divides 432 by 28 and gets a quotient of 15 with remainder 12. Explain what the quotient and remainder represent.



Lesson 22:

Divide three- and four-digit dividends by two-digit divisors resulting in two- and three-digit quotients reasoning about the decomposition of successive remainder in each place value.

Date:

7/4/13



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engage^{ny}

2.F.47

Name _____

Date _____

1. Divide, then check using multiplication.

a. $4,859 \div 23$

b. $4,368 \div 52$

c. $7,242 \div 34$

d. $3,164 \div 45$

e. $9,152 \div 29$

f. $4,424 \div 63$

2. Mr. Riley baked 1,692 chocolate cookies. He sold them in boxes of 36 cookies each. How much money did he collect if he sold them all at \$8 per box?
3. 1,092 flowers are arranged into 26 vases, with the same number of flowers in each vase. How many flowers would be needed to fill 130 such vases?
4. The elephant's water tank holds 2,560 gallons of water. After two weeks, the zookeeper measures and finds that the tank only has 1,934 gallons of water left. If the elephant drinks the same amount of water each day, how many days will a full tank of water last?

Name _____

Date _____

1. Divide, then check using multiplication.

a. $9,962 \div 41$

b. $1,495 \div 45$

c. $6,691 \div 28$

d. $2,625 \div 32$

e. $2,409 \div 19$

f. $5,821 \div 62$

2. A political gathering in South America held 788 people. Each of South America's 14 countries were equally represented. The remaining people were guests from the United States. How many guests were from the United States?
3. A chocolate company is packaging 32 ounces of caramels into reusable, plastic cups. When a shipping box is filled with these caramel packages, it weighs 49 pounds 8 ounces.
- a. How many caramel filled cups are in the box?
- b. Use your remainder to find the weight of each plastic cup.

A

Correct _____

Divide.

1	$6 \div 10 =$	.	23	$25 \div 50 =$	.
2	$6 \div 20 =$	.	24	$2.5 \div 50 =$	.
3	$6 \div 60 =$	.	25	$4.5 \div 50 =$	.
4	$8 \div 10 =$	.	26	$4.5 \div 90 =$	.
5	$8 \div 40 =$	.	27	$0.45 \div 90 =$	.
6	$8 \div 20 =$	.	28	$0.45 \div 50 =$	.
7	$4 \div 10 =$	.	29	$0.24 \div 60 =$	.
8	$4 \div 20 =$	.	30	$0.63 \div 90 =$	.
9	$4 \div 40 =$	.	31	$0.48 \div 80 =$	.
10	$9 \div 3 =$	.	32	$0.49 \div 70 =$	.
11	$9 \div 30 =$	.	33	$6 \div 30 =$	.
12	$12 \div 3 =$	.	34	$14 \div 70 =$	.
13	$12 \div 30 =$	.	35	$72 \div 90 =$	.
14	$12 \div 40 =$	.	36	$6.4 \div 80 =$	.
15	$12 \div 60 =$	.	37	$0.48 \div 40 =$	.
16	$12 \div 20 =$	.	38	$0.36 \div 30 =$	.
17	$15 \div 3 =$	.	39	$0.55 \div 50 =$	.
18	$15 \div 30 =$.	40	$1.36 \div 40 =$.
19	$15 \div 50 =$.	41	$2.04 \div 60 =$.
20	$18 \div 30 =$.	42	$4.48 \div 70 =$.
21	$24 \div 30 =$.	43	$6.16 \div 80 =$.
22	$16 \div 40 =$.	44	$5.22 \div 90 =$.

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B

Improvement _____ # Correct _____

Divide.

1	$4 \div 10 =$.	23	$25 \div 50 =$.
2	$4 \div 20 =$.	24	$2.5 \div 50 =$.
3	$4 \div 40 =$.	25	$3.5 \div 50 =$.
4	$8 \div 10 =$.	26	$3.5 \div 70 =$.
5	$8 \div 20 =$	.	27	$0.35 \div 70 =$	.
6	$8 \div 40 =$	.	28	$0.35 \div 50 =$	.
7	$9 \div 10 =$	.	29	$0.42 \div 60 =$	.
8	$9 \div 30 =$	.	30	$0.54 \div 90 =$	.
9	$9 \div 90 =$	.	31	$0.56 \div 80 =$	.
10	$6 \div 2 =$	.	32	$0.63 \div 70 =$	.
11	$6 \div 20 =$	.	33	$6 \div 30 =$	.
12	$12 \div 2 =$	.	34	$18 \div 90 =$	.
13	$12 \div 20 =$	.	35	$72 \div 80 =$	.
14	$12 \div 30 =$	.	36	$4.8 \div 80 =$	.
15	$12 \div 40 =$	.	37	$0.36 \div 30 =$	.
16	$12 \div 60 =$	.	38	$0.48 \div 40 =$	.
17	$15 \div 5 =$	.	39	$0.65 \div 50 =$	.
18	$15 \div 50 =$.	40	$1.38 \div 30 =$.
19	$15 \div 30 =$.	41	$2.64 \div 60 =$.
20	$21 \div 30 =$.	42	$5.18 \div 70 =$.
21	$27 \div 30 =$.	43	$6.96 \div 80 =$.
22	$36 \div 60 =$.	44	$6.12 \div 90 =$.

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3. Jim Nasium is building a tree house for his two daughters. He cuts 12 pieces of wood from a board that is 128 inches long. He cuts 5 pieces that measure 15.75 inches each, and 7 pieces evenly cut from what is left. Jim calculates that due to the width of his cutting blade, he will lose a total of 2 inches of wood after making all of the cuts. What is the length of each of the seven pieces?
4. A load of bricks is twice as heavy as a load of sticks. The total weight of 4 loads of bricks and 4 loads of sticks is 771 kilograms. What is the total weight of 1 load of bricks and 3 loads of sticks?

Name _____

Date _____

1. Mr. Rice needs to replace the 166.25 ft of edging on the flower beds in his backyard. The edging is sold in length of 19 ft each. How many lengths of edging will he need to purchase?
2. Olivia is making granola bars and will use 17.9 oz of pistachios, 12.6 oz of almonds, 12.5 oz of sunflower seeds, and 12.5 oz of cashews. This amount makes 25 bars. What is the total amount of nuts in each bar?
3. Adam has 16.45 kg of flour and he uses 6.4 kg to make hot cross buns. The remaining flour is exactly enough to make 15 batches of scones. How much flour will be in each batch?

4. There are 90 fifth grade students going on a field trip. Each one pays the teacher \$9.25 to cover admission to the theater and lunch. Admission for the students will cost \$315 and each one gets and equal amount to spend on lunch. How much will each fifth grader be able to spend on lunch?
5. Ben is making math manipulatives to sell. He needs to make at least \$450. Each manipulative costs \$18 to make. He is selling them for \$30 each. What is the minimum number he can sell to reach his goal?

3. The area of a rectangle is 56.96 m^2 . If the length is 16 m, what is its perimeter?
4. A city block is 3 times as long as it is wide. If the distance around the block is 0.48 kilometers, what is the area of the block in square meters?

Name _____

Date _____

Directions: Solve the word problems using the bar model.

1. Michelle wants to save \$150 for a trip to Six Flags Amusement Park. If she saves \$12 each week, how many weeks will it take her to save enough money for the trip?
2. Karen works for 85 hours over a two week period. She earns \$1,891.25 over this period. How much does Karen earn for 8 hours of work?
3. The area of a rectangle is 256.5 m^2 . If the length is 18 m, what is the perimeter of the rectangle?

4. Tyler baked 702 cookies. He sold them in boxes of 18. After selling all the boxes of cookies, he earned \$136.50. What was the cost of one box of cookies?
5. A park is 4 times as long as it is wide. If the distance around the park is 12.5 kilometers, what is the area of the park?

Exit Slips

Name _____

Date _____

1. Write the first factor above the dashed line on the place value chart and the product or quotient under the dashed line, using arrows to show how the value of the digits changed. Then write your answer in the blank.

a. $6.671 \times 100 =$ _____

b. $684 \div 1000 =$ _____

Name _____

Date _____

1. Solve.

a. $32.1 \times 10 =$ _____

b. $3632.1 \div 10 =$ _____

2. Solve.

a. $455 \times 1000 =$ _____

b. $455 \div 1000 =$ _____

Name _____

Date _____

1. Write the following in exponential form and as a multiplication sentence using only 10 as a factor (e.g., $100 = 10^2 = 10 \times 10$).

a. 1,000 = _____ = _____

b. 100×100 = _____ = _____

2. Write the following in standard form (e.g., $4 \times 10^2 = 400$).

a. $3 \times 10^2 =$ _____

c. $800 \div 10^2 =$ _____

b. $2.16 \times 10^4 =$ _____

d. $754.2 \div 10^3 =$ _____

Name _____

Date _____

1. Convert:

- a. 2 meters to centimeters

$$2 \text{ m} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ cm}$$

- b. 40 milliliters to liters

$$40 \text{ ml} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ l}$$

2. Read each aloud as you write the equivalent measures.

- a. 4.37 l =
-
- l
-
- ml

- b. 81.62 kg =
-
- kg
-
- g

Name _____

Date _____

1. Find the products.

a. $1,900 \times 20$

b. $6,000 \times 50$

c. 250×300

2. Explain how knowing $50 \times 4 = 200$ helps you find 500×400 .

Name _____

Date _____

1. Round the factors and estimate the products.

a. $656 \times 106 \approx$

b. $3,108 \times 7,942 \approx$

c. $425 \times 9,311 \approx$

d. $8,633 \times 57,008 \approx$


Name _____

Date _____

1. Draw a model then write the numerical expressions.

a. The difference between 8 forty-sevens and 7 forty-sevens	b. 6 times the sum of 12 and 8
---	--------------------------------

2. Compare the two expressions using $>$, $<$, or $=$.

$62 \times (70 + 8)$		$(70 + 8) \times 26$
----------------------	---	----------------------

Name _____

Date _____

1. Solve using mental math. Draw a tape diagram and fill in the blanks to show your thinking.

a. $49 \times 11 =$ _____ elevens

Think: 50 elevens – 1 eleven

$$= (\text{_____} \times 11) - (\text{_____} \times 11)$$

$$= \text{_____} - \text{_____} = \text{_____}$$

b. $25 \times 13 =$ _____ twenty-fives

Think: _____ twenty-fives + _____ twenty-fives

$$= (\text{_____} \times 25) + (\text{_____} \times 25)$$

$$= \text{_____} + \text{_____} = \text{_____}$$

Name _____

Date _____

1. Complete the area model then solve using the standard algorithm.

a. $21 \times 23 =$ _____

$$\begin{array}{r} 21 \\ \times 23 \\ \hline \end{array}$$

b. $143 \times 12 =$ _____

$$\begin{array}{r} 143 \\ \times 12 \\ \hline \end{array}$$

Name _____

Date _____

1. Draw an area model, and then solve using the standard algorithm. Use arrows to match the partial products from your area model to the partial products in the algorithm.

a. $78 \times 42 =$ _____

 78 $\times 42$

b. $783 \times 42 =$ _____

 783 $\times 42$

Name _____

Date _____

1. Draw an area model, and then solve using the standard algorithm.

a. $642 \times 257 =$ _____

6 4 2

 $\times 257$

b. $642 \times 207 =$ _____

6 4 2

 $\times 207$

Name _____

Date _____

1. Estimate the product first. Solve by using the standard algorithm. Use your estimate to check the reasonableness of the product.

a. $283 \times 416 =$ _____

$$\begin{array}{r} 283 \\ \times 416 \\ \hline \end{array}$$

\approx _____ \times _____

$=$ _____

b. $2,803 \times 406 =$ _____

$$\begin{array}{r} 2803 \\ \times 406 \\ \hline \end{array}$$

\approx _____ \times _____

$=$ _____

Name _____

Date _____

Solve.

1. Juwad picked 30 bags of apples on Monday and sold them at his fruit stand for \$3.45 each. The following week he picked and sold 6 bags more.
 - a. How much money did Juwad earn in the first week?
 - b. How much money did he earn in the second week?
 - c. How much did Juwad earn selling bags of apples these two weeks?
 - d. (Bonus) Each bag Juwad picked holds 15 apples. How many apples did he pick in two weeks? Write an expression to represent this statement.

Name _____

Date _____

1. Divide.

a. $17,000 \div 100$	b. $59,000 \div 1,000$
c. $12,000 \div 40$	d. $480,000 \div 600$

Name _____

Date _____

1. Estimate the quotient for the following problems.

a. $608 \div 23$

\approx _____ \div _____

$=$ _____

b. $913 \div 31$

\approx _____ \div _____

$=$ _____

c. $151 \div 39$

\approx _____ \div _____

$=$ _____

d. $481 \div 68$

\approx _____ \div _____

$=$ _____

Name _____

Date _____

1. Estimate the quotient for the following problems.

<p>a. $6,523 \div 21$</p> <p>\approx _____ \div _____</p> <p>\approx _____</p>	<p>b. $8,491 \div 37$</p> <p>\approx _____ \div _____</p> <p>\approx _____</p>
<p>c. $3,704 \div 53$</p> <p>\approx _____ \div _____</p> <p>\approx _____</p>	<p>d. $4,819 \div 68$</p> <p>\approx _____ \div _____</p> <p>\approx _____</p>

Name _____

Date _____

1. Divide, then check using multiplication.

a. $73 \div 20$

b. $291 \div 30$

Name _____

Date _____

1. Divide, then check with multiplication.

a. $78 \div 21$

b. $89 \div 37$

Name _____

Date _____

1. Divide, then check using multiplication.

a. $326 \div 53$

b. $192 \div 38$

Name _____

Date _____

1. Divide, then check using multiplication.

a. $413 \div 19$

b. $708 \div 67$

Name _____

Date _____

1. Divide, then check using multiplication.

a. $8,283 \div 19$

b. $1,056 \div 37$

Name _____

Date _____

Solve this problem and show all your work.

1. Kenny is ordering uniforms for both the girls' and boys' tennis clubs. He is ordering shirts for 43 players and two coaches at a total cost of \$658.35. In addition, he is ordering visors for each player at a total cost of \$368.51. How much will each player pay for the shirt and visor?

Name _____

Date _____

Solve.

Hayley borrowed \$1,854 from her parents. She agreed to repay them in equal installments over the next 18 months. How much will Hayley still owe her parents after a year?